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# **Chemical Safety Board's Preliminary Findings in BP Texas City Refinery Accident**

**Leadership ViTS Meeting  
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# The Accident

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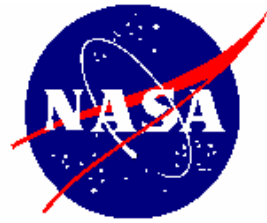
- On March 23, 2005, a series of explosions occurred at the BP Texas City refinery during the restarting of a petroleum processing unit.

- Many victims were in or around work trailers near an atmospheric vent stack.

- 15 workers killed
- 170 others injured



- Explosions occurred when a distillation tower being restarted was flooded with hydrocarbons and was over pressurized, causing a geyser-like release from the vent stack.



# Preliminary Proximate Cause Factors Identified

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- **Trailers located too close to hazardous materials and processes:**
  - Trailers were heavily damaged out to 600 feet
  - Fatalities in and around trailers as close as 121 feet
- **Improper Procedures**
  - System should not have been started up due to existing malfunctions
- **Critical Components Inoperative**
  - Level indicator
  - Level alarm
  - Control valve



## Relevant History

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- History of abnormal startups in system including recurrent high liquid levels and pressures.
- Four other serious flammable material releases from the system that lead to ground level vapor clouds between 1995 and March 23, 2005; fortunately none ignited.
- System was operated without a flare stack on the vent since its construction in the 1950s.
- Previous owner replaced the system in kind in 1997, not updating it to include a flare as recommended by their corporate refinery safety standards.
- In 1992 OSHA cited a similar blowdown drum and stack at the Texas City refinery as unsafe because it vented flammable material directly to the atmosphere, but the citation was dropped and the drum was not connected to a flare system.

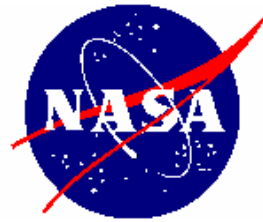


## Other items noted by CSB

(Some may be root cause)

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- Inadequate and nonfunctional instrumentation
- Serious concerns regarding effectiveness of
  - Hazard Analyses
  - Change Management
  - Mishap Investigation
- Management of Employee Fatigue
- Downsizing of Supervision, Training and Critical Staff
- Handling of obsolete equipment
- Statement by CSB Chairman Carolyn W. Merritt:  
*“Almost every executive believes he or she is conveying a message that safety is number one. But it is not always so in reality.”*



## Immediate Actions Recommended by CSB

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- The CSB Accident Board called for new industry safety guidance that establishes minimum distances for occupied trailers away from hazardous areas of process plants.
- The CSB Accident Board urged prompt action by the industry “to ensure the safe placement of occupied trailers away from hazardous areas of process plants,” before the new safety guidance is completed.
- Additional recommendations will be provided in the final public report due later this year.
- Further information is available at:

[http://www.csb.gov/index.cfm?folder=current\\_investigations&page=info&INV\\_ID=52](http://www.csb.gov/index.cfm?folder=current_investigations&page=info&INV_ID=52)